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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,397	10/16/2003	Hiroaki Fujinami	117543	6686

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EXAMINER	
NGUYEN, THU V	
ART UNIT	**PAPER NUMBER**
3661	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/685,397	**Applicant(s)** FUJINAMI ET AL.	
	Examiner Thu Nguyen	**Art Unit** 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/23/06 & 6/15/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-8* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1-3,5 and 6* is/are allowed.
6)☒ Claim(s) *7 and 8* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☒ All b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The request for reconsideration submitted on February 23, 2006 has been considered. The restriction requirement issued on May 16, 2006 has been withdrawn as commented in the "response to arguments" section below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruko et al (US 2002/0091479).

As per claim 7, Maruko teaches a device for controlling a braking force of a vehicle, the device comprises: braking force boosting control portion in response to a detection of a first possibility of a collision in a driving course of the vehicle (fig.14, step S117); a boost reducing control portion so as to reduce the braking force when a steering operation is executed by a driver (fig.14, step S118 which is executed when the flag LC=1 indicating steering execution by the driver). Moreover, since the algorithm in fig.14 would have been executed repeatedly, Maruko obviously encompasses teaching executing the boost reducing control portion step S118 (fig.14) until the second possibility that the lane change LC is not executing at which situation, step S117 at which the boost reducing control portion is canceled is executed. Moreover, according to fig.4, the LC flag indicates the possibility of avoiding the collision by steering (by changing the threshold that influence setting of the LC flag according to the time of collision TC (para 54-56), Maruko obviously encompasses teaching canceling the boost reducing control portion when the collision is not avoidable by steering (unavoidable collision occurs when the TC is small & the distance L is small, in such the unavoidable collision, the thresholds α and β are set to maximum as indicated by fig.7 and 9) and the flag LC indicating avoidable steering operation is set to zero in order to prevent the steering operation from being greater than the maximum thresholds α and β in steps S59, S60 and S66 of fig.4.

With respect to claim 8, refer to claim 7 above, furthermore, since Makuro teaches maintaining the braking force at the target value (Pt* = Pt when k1=k2=1 in situation the time-to-collision TC is approaching zero, and the steering operation is small), Makuro obviously encompasses teaching canceling reduction of the brake force when collision is inevitable.

Allowable Subject Matter

3. Claims 1-3, 5-6 are allowed.

4. The following is an examiner's statement of reasons for allowance:

Prior arts of record do not disclose a device for controlling braking force of a vehicle set forth in claims 1 or 2. The device comprises a braking force boosting control portion that increases the braking force in response to a detection of a possibility of a collision; a boost-reducing control portion that control the braking force boosting control portion to reduce the braking force when a steering operation is executed and allow the driver to avoid collision through steering operation, the boost reducing control portion control reduction in the braking force based on lateral force on a wheel of the vehicle.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Since the amended claims 1-3, 5-6 are found allowable over prior arts, the restriction requirement issued on May 16, 2006 has been withdrawn. The elected claims 7-8 is herein examined and stands rejected.

Since claims 1-3, 5-6 are allowable over the cited prior arts, applicant's argument on page 2-5 are moot.

In response to applicant's argument on page 6 on claims 7-8, Maruko teaches the claimed subject matter as explained in details in claim 7 section 35 USC 103 above.

In response to applicant's argument on page 7, first paragraph, although the LC flag is described as the driver's intention for lane changing, the LC flag clearly reflects the possibility of collision avoidance by steering operation because the LC flag is set according to the comparison of the steering angle and the relative angle between the vehicle and the object with thresholds α and β, the thresholds are set higher as the time of collision and the distance between the vehicle and the object are shorter (fig.7 and fig.9). Therefore when the time of collision or the distance between the vehicle and the object is short (which indicates situation where avoidance is not possible by steering), the threshold are set so high that the steering angle of the host vehicle cannot be larger to set the LC flag to 1. Therefore, Maruko obviously encompasses teaching inevitable collision situation (when the LC flag is equal zero). Concerning applicant's comment on lines 7-9, the examiner does not really understand what the applicant tries to explain. The examiner would like to comment that since the thresholds α and β are set according to the distance and the time to collision, since the thresholds are set such that only when the steering angle greater than the threshold, the avoidance would be possible given the anticipated time to collision TC or the distance L, the steering angle cannot avoid collision when steering operation is lower than the thresholds α and β.

In response to applicant's argument on page 7, second paragraph, claims 7 and 8 do not teach using predictions relating to the steering or braking ability of the vehicle. Claim 7 and 8 do not disclose how the steering or braking ability is predicted. Applicant's arguments in this paragraph is therefore moot.

In response to applicant's argument on page 8, lines 10-12, since the time to collide clearly indicate collision condition (the shorter the time to collide TC (fig.7), the higher the possibility of collision), similarly, the shorter the distance L (fig.9) between the vehicle and the object, the higher the possibility of collision, setting the thresholds α and β according to the time to collide and the distance L clearly indicate how much steering the operator has to steer to avoid collision condition. Therefore, Maruko obviously disclose determining if the collision is avoidable by steering operation by comparing the steering angle and the relative angle of the vehicle to the object with the thresholds.

Applicant's argument on page 8, last paragraph and page 9, lines 1-2 and first two paragraphs, is moot since claims 7 and 8 do not disclose the lateral force.

In response to applicant's argument on page 9, last paragraph, and page 10, equation (6) shows the supplemental brake amount which is adjusted as a function of TC (time to collide) and the steering angle when the steering angle is small or when the time to collide are so small that the gain k1 and k2 is set at maximum value. When the steering angle is small (causing possible inevitable collision) or when the TC is small (causing possible inevitable collision), the brake boosting reduction is cancelled because the compensated brake force Pt* is equal the maximum target brake force Pt. Moreover, since the algorithm of fig.14 is executed repeatedly, the steps S117-S119 will be continuously selected. When the collision is unavoidable by steering (LC=0 and as explained above), step S117 in which boost reducing control portion is not active, therefore, Maruko teaches canceling the brake reducing control when collision is not avoidable as claimed. The reference taught by Maruko has been considered as a whole. The examiner cited the relevant figs 4, 7, 9, and 14 to emphasize the most relevant sections that are obviously read on the claim limitations of claims 7 and 8.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to

37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (571) 272-6967. The examiner can normally be reached on T-F (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 21, 2006

THU V. NGUYEN
PRIMARY EXAMINER